

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the Application.

Claim 1. (Currently Amended) A method of operating a communication system to reduce echo of a narrowband first signal in a wideband second signal, the method comprising:

receiving ~~[[a]]~~ the first signal having spectral components within a first frequency band;

accepting ~~[[a]]~~ the second signal having spectral components in ~~at least~~ a second frequency band comprising the first frequency band and having spectral components extending beyond the first frequency band;

removing a modified version of the first signal from the second signal to produce a third signal; and

processing the third signal based upon a level of spectral components of the second signal ~~in the second frequency band~~ extending beyond the first frequency band, to further reduce echo of the first signal in the third signal.

Claim 2. (Original) The method of claim 1 wherein the first frequency band comprises from approximately 0 Hz to approximately 4 KHz.

Claim 3. (Original) The method of claim 1 wherein the second frequency band comprises from approximately 4 KHz to approximately 8 KHz.

Claim 4. (Original) The method of claim 1 wherein the first frequency band and the second frequency band are essentially non-overlapping.

Claim 5. (Original) The method of claim 1 wherein the modification of the first signal comprises at least one of delaying and attenuating.

Claim 6. (Original) The method of claim 1 wherein the processing comprises:
attenuating the third signal when the level of spectral components of the second signal in the second frequency band is below a predetermined level; and

refraining from attenuating the third signal when the level of spectral components of the second signal in the second frequency band is at or above the predetermined level.

Claim 7. (Original) The method of claim 1 wherein the communication system comprises a packet network.

Claim 8. (Currently amended) A method of operating a communication system, the method comprising:

receiving a first signal having a ~~relatively greater~~ first bandwidth;

processing the first signal to produce a second signal having a ~~relatively lesser~~ second bandwidth that is a subset of the first bandwidth; and

wherein the communication system ~~detecting~~ detects the occurrence of the first signal based upon at least one characteristic of the first signal that is not present in the second signal.

Claim 9. (Original) The method of claim 8 wherein the at least one characteristic comprises the presence of energy in a portion of the relatively greater bandwidth of the first signal, the portion not being present in the relatively lesser bandwidth of the second signal.

Claim 10. (Currently amended) A ~~computer~~machine-readable storage, having stored thereon a computer program having a plurality of code sections for operating a

communication system to reduce echo of a narrowband first signal in a wideband second signal, the code sections executable by a ~~machine~~ processor for causing the ~~machine~~ processor to perform the operations comprising:

receiving ~~[[a]]~~ the first signal having spectral components within a first frequency band;

accepting ~~[[a]]~~ the second signal having spectral components in a second frequency band comprising the first frequency band and having spectral components extending beyond the first frequency band;

removing a modified version of the first signal from the second signal to produce a third signal; and

processing the third signal based upon a level of spectral components of the second signal ~~in the second frequency band~~ extending beyond the first frequency band, to further reduce echo of the first signal in the third signal.

Claim 11. (Original) The machine-readable storage of claim 10 wherein the first frequency band comprises approximately 0 Hz to approximately 4 KHz.

Claim 12. (Original) The machine-readable storage of claim 10 wherein the second frequency band comprises approximately 4 KHz to approximately 8 KHz.

Claim 13. (Original) The machine-readable storage of claim 10 wherein the first frequency band and the second frequency band are essentially non-overlapping.

Claim 14. (Original) The machine-readable storage of claim 10 wherein the modification of the first signal comprises at least one of delaying and attenuating.

Claim 15. (Original) The machine-readable storage of claim 10 wherein the processing comprises:

attenuating the third signal when the level of spectral components of the second signal in the second frequency band is below a predetermined level; and

refraining from attenuating the third signal when the level of spectral components of the second signal in the second frequency band is at or above the predetermined level.

Claim 16. (Original) The machine-readable storage of claim 10 wherein the communication system comprises a packet network.

Claim 17. (Currently amended) A signal processing device for reducing echo of a narrowband first signal in a wideband second signal, the device comprising:

a first input for receiving a first signal comprising energy in a first frequency band;

a second input for receiving a second signal comprising energy in a second frequency band comprising the first frequency band and having spectral components extending beyond the first frequency band;

an echo canceller that receives the first signal and the second signal, the echo canceller producing a third signal; and

a non-linear processor that attenuates the third signal based upon a level of energy ~~in the second frequency band~~ extending beyond the first frequency band of the second input, to further reduce echo of the first signal in the third signal.

Claim 18. (Original) The device of claim 17 wherein the first frequency band comprises from approximately 0 Hz to approximately 4 KHz.

Claim 19. (Original) The device of claim 17 wherein the second frequency band comprises from approximately 4 KHz to approximately 8 KHz.

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Claim 20. (Original) The device of claim 17 wherein the first frequency band and the second frequency band are essentially non-overlapping.

Claim 21. (Original) The device of claim 17 wherein the communication system comprises a packet network.